HARRIS, Eric   Dr. Galloway

FINAL ANATOMIC DIAGNOSES:

1. Through and through high energy contact gunshot wound involving the roof of the mouth associated with:

   A. Extensive lacerations of the scalp and soft tissues of the face
   B. Massive fracturing of the skull
   C. Evacuation of the brain - cerebral cortex and brain stem
   D. Extensive fracturing of the facial bones

COMMENT: The autopsy findings in this case reveal that the cause of death is due to massive head injury secondary to a high energy gunshot wound involving the roof of the mouth, consistent with a shotgun. This wound is consistent with self-infliction.

Ben Galloway MD

Ben Galloway, M.D.
Forensic Pathologist

This autopsy is performed in the Jefferson County Coroner's Office in Golden, Colorado on 04/22/99 at 2:00 p.m. The autopsy is done at the request of Dr. Nancy Bodelson, the Coroner of Jefferson County. Identification is by fingerprints. The position identification for this individual is #12. Members of the Jefferson County Sheriff's Department attended the autopsy. I am assisted in the autopsy by Mr. Rob Kulbacki.

HISTORY: This is the case of an 18-year-old, white male who was the alleged victim of a self-inflicted gunshot wound to the head that occurred in the Columbine High School library on 04/20/99. No other history is available at the time of autopsy.

EXTERNAL EXAMINATION: The body is clothed in a blood stained white T-shirt with the inscription "Natural Selection" on the front; green plaid jockey shorts; black combat boots; white socks; and a black glove on the right hand with the fingers cut away. This is the unembalmed, well-developed, well-nourished, extensively traumatized body of a white male appearing consistent with the stated age of 18. Height is measured at 5'8-1/2"; weight is estimated at 135-140 pounds. Rigor is present in the lower extremities only. Faint reddish-purple livor is present over the dorsal aspects of the body with appropriate blanching of the pressure points.

HEAD: The scalp is covered by short, blood stained, black hair. The normal contour of the head is prominently distorted by extensive laceration of the scalp and associated massive fracturing of the cranium. Present in the mid-aspect of the lower forehead and extending downward to involve the bridge of the nose; the distal portion of the right side of the nose; and the medial aspects of both orbits; is an oblong configured blow-out type of laceration measuring 3" in length by 2" in width, associated with underlying multiple fracture fragments which extend outward from the wound. Present on the right lower forehead, extending upwards and across the lateral aspect of the right side of the head; extending up over the apex of the head; and then extending downward to involve the posterior aspect of the scalp to the level of the horizontal plane of the ears; is a large gaping laceration which measures 8" in length by 3" in width. Ears - both ears are intact. There is blood in both external auditory canals. There is blood staining of the earlobes. Present anterior to both of the ears are vertical lacerations. The one on the right measures 1-1/2" in length; the one on the left measures 3/4" in length; and these are consistent with blow-out injuries from a gunshot wound involving the mouth. Eyes - the eyebrows are brown. The orbits are distorted by fracturing of the underlying skeleton. The sclera on the right is bluish-gray; the sclera on the left is white. The right iris is gray; the left iris is hazel. The pupils are round, measure 8 mm, and are directed anteriorly. The conjunctivae are minimally congested. No petechiae are observed. A reddish-purple periorbital contusion involves the left orbit. Nose - there is, as previously described, injury to the external surface of the

nose with extensive underlying fractures. Present adjacent to the right lateral margin of the nose are two vertical lacerations, each measuring 1/4". Present on both sides of the face are multiple linear, curvilinear, punctate lacerations and cuts, more dense on the right. Palpating the face reveals massive fracturing of the facial bones. Mouth - there are several lacerations involving the corners of both sides of the mouth, the largest of which is on the right side, measuring 1/2" in length. There are multiple mucosal lacerations involving the mid-aspect of the lower lip. Slightly downward from the right side of the mouth is a laterally diagonal laceration measuring 1/2" in length. There is extensive laceration of the buccal mucosa. The tongue is intact, reddish-purple, with some black staining consistent with powder. There are central fractures of the upper and lower alveolar ridges. The teeth are intact with the exception that the lateral lower incisor on the right side of the jaw is absent. There is dense powder (soot) staining the mucosal surface of the hard palate. There is a large cavitary defect involving the roof of the mouth, including the hard palate, the soft palate, extending upwards involving the nasal pharynx and nasal passages, communicating directly into the base of the skull. This represents a contact entrance high energy gunshot wound. Present on the lateral surface of both sides of the face are brown whiskers.

NECK: The external surface of the neck reveals no evidence of trauma. The neck organs are in the midline without palpable masses.

CHEST: The chest demonstrates a mild pectus excavatum with some central decrease in the anterior-posterior diameter. Present in this area is a curvilinear, horizontally oriented scar. No external trauma involves the chest. The breasts are normal male. Palpating the chest reveals no instability. The axillae are negative to observation and palpation.

ABDOMEN: The abdomen is flat. No external trauma is present. There is no evidence of previous surgical exploration. There is green discoloration of the lower abdomen. On deep palpation, no organomegaly or masses are noted grossly.

GENITALIA: A normal appearing male, black, genital hair pattern is present. The penis is of normal size, shape, and position; circumcised. Both testicles are bilaterally descended in their respective scrotal sacs without palpable masses. There is a pigmented nevus in the right groin.

BACK: Present on the right upper back is a horizontal area of soft tissue indentation with postmortem drying artifact. There is a small pigmented nevus on the right lower quadrant of the back. The anus is intact without any unusual dilatation or trauma.

EXTREMITIES: The upper extremities are intact. The nails are

intact, short and slightly dirty. The lateral surfaces of the hands are unremarkable. The forearms are unremarkable. The antecubital fossae reveal no evidence of recent needle puncture marks or scars. Present on the lateral aspect of the left upper arm is a small cluster of punctate lacerations and cuts. Present on the lateral aspect of the right upper arm is a reddish-brown abrasion associated with purple contusion measuring 3/8" in size. Arm spans: the right arm from the right shoulder to the tip of the right index finger is 30-1/2"; the left arm from the left shoulder to the tip of the left index finger is 31". The lower extremities are intact without evidence of congenital abnormality or trauma. There is a small reddish-brown abrasion on the lateral aspect of the right foot.

INTERNAL EXAMINATION: Through the usual Y-shaped incision, a thin layer of yellow subcutaneous adipose tissue and reddish-brown musculature are revealed. The diaphragms are intact and arch to the level of the 5th left intercostal space and the 4th right intercostal space. The peritoneal cavity contains no unusual accumulation of fluid. The lining is smooth, gray and glistening. The viscera and omentum are normally disposed.

PLEURAL SPACES: The pleural spaces are without any unusual accumulation of fluid. The parietal pleurae are smooth, gray and glistening. The ribs of the chest are intact and unremarkable grossly. There is a mild pectus excavatum deformity of the sternum. The clavicles are intact. The pericardial sac is intact. The lumen contains 8 cc of clear fluid. The pericardium is smooth, gray and glistening.

THYMUS: Five (5) grams of pink, lobular, firm, thymic tissue is present in the anterior-superior mediastinal space.

NECK: The lumen of the upper esophagus and pharynx is patent. The mucosal surface is tan and wrinkled. The lumen of the upper respiratory tract is patent. The mucosal surface is tan and smooth. The hyoid bone and cricothyroid cartilages are intact. There are contusions involving the mucosal surface of the piriform sinus consistent with the blast impact of the contact gunshot wound to the roof of the mouth.

THYROID: The thyroid is of normal size, shape, and position, and has a reddish-brown, lobular, firm, gross appearance. The cervical vertebrae are intact. There is no obstruction to the posterior nasopharynx or the posterior aspect of the oral cavity. I can palpate a large defect of the nasopharynx associated with multiple fracture fragments. The major vessels of the neck are intact and unremarkable grossly. There is no soft tissue hemorrhage in the neck.

HEART: The heart is intact and weighs 290 grams. The epicardial surface is reddish-brown, smooth, and glistening. Very little epicardial yellow fat is present. The myocardium is reddish-brown and firm without gross evidence of fibrosis or softening.

The ventricular walls are of normal thickness. The endocardial surface is reddish-brown, smooth, and glistening. The cardiac valves are intact. The valve leaflets are thin and fully pliable. The valve circumferences are normal for this size heart. The chordae tendineae are tan and delicate. The papillary muscles are intact. The foramen ovale is closed. The atrial septum is intact. The coronary sinus is patent. The ventricular septum is intact. The coronary ostia are in a normal anatomic position and widely patent. The coronary arteries demonstrate a normal anatomic distribution with normal gross features.

AORTA: The aorta is intact and of normal course and calibre throughout. The intimal surface is tan and smooth. The wall is thin and elastic. The main abdominal tributaries are intact.

RESPIRATORY SYSTEM: The lumen of the lower respiratory tract contains a small amount of hemorrhagic fluid on the right side. The mucosal surface is hyperemic and smooth. The lungs are moderately well aerated. The pleural surfaces are pink, smooth and glistening. The lungs together weigh 600 grams. Serial sections reveal moderately well aerated, soft, spongy, lung tissue. The pulmonary arteries are intact without evidence of thromboembolic disease. The pulmonary veins empty into the left atrium in a normal fashion.

GASTROINTESTINAL SYSTEM: The esophagus is of normal course and calibre throughout. The lumen is patent. The mucosal surface is tan with longitudinal furrowing. The wall is thin. The stomach is in a normal anatomic position. The lumen contains 250 cc of brown, liquid, gastric contents. The gastric mucosa is tan with intact rugae. No peptic ulcer disease or tumor are noted grossly. The small bowel demonstrates a normal anatomic distribution with normal gross features. The appendix is present and unremarkable grossly. The large bowel demonstrates a normal anatomic distribution with normal gross features.

SPLEEN: The spleen is intact and weighs 160 grams. The external surface is purple and smooth. Serial sections reveal a firm, reddish-purple, splenic parenchyma.

LIVER: The liver is intact and weighs 1250 grams. The external surface is reddish-brown, smooth, and glistening. Serial sections reveal a soft, reddish-brown, lobular, normal appearing, liver tissue.

GALLBLADDER: The gallbladder is intact. The lumen contains 10 cc of liquid, yellowish-brown bile. The mucosal surface is smooth and bile stained. The cystic duct and common bile duct are intact and patent throughout. The portal vein, splenic vein, and superior mesenteric vein are intact and patent.

PANCREAS: The pancreas is of normal size, shape, and position, and has a tan, lobular, soft, partially autolyzed, gross

appearance.

ADRENALS: Both adrenals are identified. Serial sections reveal a thin yellow cortex and gray medulla.

KIDNEYS: Both kidneys are identified. The capsules strip easily. The left kidney weighs 120 grams; the right kidney weighs 110 grams. The cortical surfaces are reddish-brown and smooth. Bivalving of each kidney reveals a well-demarcated, reddish-brown cortex and medulla. The renal papillae are normal. There is no calyceal scarring. There is no unusual pelvic dilatation. Both ureters are present, patent, and uniform in diameter throughout.

BLADDER: The bladder is intact. The lumen contains 2 cc of cloudy yellow urine. The bladder mucosa is tan and wrinkled. The prostate, seminal vesicles and testicles are intact and unremarkable grossly.

MUSCULOSKELETAL SYSTEM: Other than the injuries to be described under the observation of the head, no other injuries are observed.

LYMPHATICS: There are reactive lower respiratory tract lymph nodes. A biopsy is taken.

VENOUS SYSTEM: There is no evidence of hepatic vein, renal vein, or portal vein thrombosis. The superior and inferior vena cavae are intact.

CENTRAL NERVOUS SYSTEM: As previously described, the scalp is massively lacerated. The external cranium is markedly distorted with a large area in the right lateral and posterior aspects of the head absent, having been blown away. The cranium is a mass of fracture fragments. The cerebral cortex and brain stem have been evacuated. All that remains is a small portion of medulla oblongata. Several large fragments of brain are submitted separately consisting of portions of cerebral cortex; examined and there is no evidence of any underlying disease. There is massive fracturing of the base of the skull, and there is a large cavitary defect involving the base of the skull, including the posterior aspect of the orbital plates, the temporal fossae, portion of the posterior fossae, and the sphenoid bone and clivus. This is the area that represents entry of the gunshot wound into the skull. C1 and C2 are intact. The odontoid ligament and odontoid processes are intact.

TOXICOLOGY:

Blood: I obtained two gray-stoppered test tubes of blood from the heart.

Urine: I obtained one gray-stoppered test tube of urine.

Bile: I obtained one gray-stoppered test tube of bile.

Gastric Contents: I obtained one gray-stoppered test tube and one red-stoppered test tube of gastric contents.

Vitreous Humor: I obtained one gray-stoppered test tube of vitreous humor.

I also obtained approximately 100 grams of liver and 100 grams of kidney which will be retained and frozen.

TRACE EVIDENCE:

1. Hair samples: I obtained random scalp and pubic hair.
2. I obtained left and right nail scrapings.
3. I obtained one yellow-stoppered test tube of blood, one purple-stoppered test tube of blood, and one red-stoppered test tube of blood.

The hair samples and nail scrapings are given to the Jefferson County Sheriff's Officers in attendance at the autopsy.

We will keep the blood samples with the toxicology specimens for a year for any possible evidentiary need.

X-RAY EXAMINATION: Revealed no evidence of retained bullets.

WOUND SUMMARY: The wound of entrance is a high energy gunshot wound to the roof of the mouth consistent with shotgun. The major force of the wound extended upward, backwards, and slightly to the right, causing large cavitary defects in the base of the skull and the right lateral posterior aspect of the skull. The characteristics of the wound are consistent with self-infliction.

04/29/99 ADDENDUM:

Additional material obtained from the scene is submitted for examination includes:

A. Skull fragments with one tooth.
B. Decomposed brain tissue - 600 grams

IMPRESSIONS:

1. Decomposing cerebral cortex and cerebellar cortex - containing bone fragments - one circular shotgun wad - one tiny piece of what appears to be metal

   A. Wad and metal given to Sheriff's Office.

2. Skull fragments demonstrating circular perforations with outward beveling

3. Separated dried blood for any future DNA testing - frozen

4. Other specimens frozen separately - i.e. bone from decomposing brain tissue

MICROSCOPICS:

Thymus: Normal histologic features.

Adrenal: Normal histologic features.

Brain Fragments: Sections reveal early autolysis and small foci of intraparenchymal hemorrhage involving the medulla.

Liver: Sections reveal moderate autolysis.

Kidney: Sections reveal moderate autolysis.

Lymph Node: Sections reveal benign reactive lymphoid hyperplasia.

Stomach: Sections reveal early autolysis involving the gastric mucosa.

Heart: Normal histologic features.

Spleen: Normal histologic features.

Thyroid: Normal histologic features.

Lung: Sections reveal patchy atelectasis.

TOXICOLOGY:

Blood Alcohol Negative

Blood Drug Screen - Gas Chromatography/Mass Spectroscopy
Only drug detected is Fluvoxamine - 390 ng/ml
(therapeutic levels 50-900 ng/ml)

Urine Drug Screen Negative